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**Patent Application**  
**Attorney Docket No. D/A0433Q1**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Inventor(s): Proper  
Application No.: 10/024,196  
Filed: 12/21/01

Examiner: Mark Chapman

Art Unit: 1756

**Title: TONER WITH INCREASED AMOUNT OF  
SURFACE ADDITIVES AND INCREASED  
SURFACE ADDITIVE ADHESION**

Commissioner for Patents

Washington, D.C. 20231

Sir:

**CERTIFICATE OF TRANSMISSION**  
I hereby certify that this correspondence  
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**DECLARATION**

I, **SAMIR KUMAR**, hereby declare that

1. I have received a Ph.D. degree from The Ohio State University in  
Chemical Engineering.

2. I have been continuously employed by Xerox Corporation for 9 years  
where I have been engaged in research and engineering activities relating to  
Toner/Developer materials and processes, and more specifically, the  
composition and production design of black toner and carrier/developer. My  
current title is Area Manager, and I am the manager of Developer and Black  
Toner Product Delivery department having Bernard Kelly and 20 other  
professionals under my supervision.

3. I have reviewed the prior art being applied by the Examiner. I conclude  
that the references being applied do not disclose a toner having (i) an  
average volume diameter size if equal to or less than about 15 microns and

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(ii) surface additive particles adhered to the toner particle in a quantity of equal to or greater than about two (2) percent of the combined weight of resin and colorant and (iii) wherein the Additive Adhesion Force Distribution percent value after 12 kJ of sonification energy exceeds 40 percent.

More specifically, in U.S. Patent No. 6, 245, 474 issued to Hsu, there is disclosed toner particles having toner particles with an average volume diameter of from about 5 to about 20 microns. See, column 8, lines 52-55. There is also disclosed a combination of surface and internal additives "in an amount of from 0.1 percent by weight to about 20 percent by weight, and preferably from about 1 to about 3 percent by weight." Column 8, lines 38-42. It is important to note, however, that the weight percents given in Hsu apply to a combination of both surface and internal additives whereas the present invention is directed to only the quantity of external surface additives. Bernard Kelly and Scott Silence, inventors of the '474 patent, work with me, and I am familiar with their work that resulted in the '474 patent.

4. In the Office Action, the Examiner asserts that "It would have been obvious to one of ordinary skill in the art to use the surface additive toners of a known size as taught by Combes in the toner composition taught by Hsu because of the expectation of similar results due to well known surface additives used for the same purpose of charging characteristics." No support for this statement is provided. However, until the advent of the high-intensity blending tool described in the present Application, no one had produced a 15 micron or smaller toner with 2% external surface additive by weight with such high additive adhesion strength (the AAFD percent value after 12kJ of sonification energy is greater than 40 percent). Without high intensity blending, such a toner could not be produced because the conventional forces of impaction, even if blended for a long period, would not

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result in the adhesion of that much additive to the surface of such a small toner.

With respect to the Combes reference (5,714,299), it is true that Combes describes surface additives covering the about 30 to about 50 nanometer range claimed in the present Application. However, Combes does not address either the amount of such surface additives that preferably are impacted upon a toner surface nor the adhesion forces necessary to maintain sufficient additives on the toner particle.

For the reasons stated above, the toner described in Hsu and Combes is not the same toner as described in Claim 1 of the Application. The Hsu patent and the Combes patent are therefore not applicable to the present invention, and the present invention would not be obvious to one skilled in the art based upon the conventional technology described in Hsu and Combes.

I, the undersigned further declare that all statements made herein of my own knowledge are true and that all statements made on information and beliefs are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code, and further such willful statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

Samir Kumar

Dr. Samir Kumar

7/24/2003

Date

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